b) Remarks

The claims are 1, 3-8 and 12 with claim 1 the sole independent claim. Reconsideration of the claims is requested.

Claims 1, 3, 5 and 6 were rejected as anticipated by Speakman '564. Claim 4, 7, 8 and 12 were rejected as obvious over Speakman '564 in view of the Admitted Prior Art (APR), JP2000 - 318308 (JP '308) cited on specification page 11, lines 1-4. The grounds of rejection are respectfully traversed.

Prior to addressing the grounds of rejection applicants wish to briefly review certain key features and advantages of the present claimed invention.

In the present claimed invention the member is formed by (i) applying a colloid having a metal core and an organic substance shell to form a layer of the colloid on a porous substrate surface; and (ii) drying the colloid with hot air or infrared radiation (IR) to remove the organic substance and a liquid medium and to anchor the metal colloid particles to the substrate. It will be demonstrated Speakman '564 fails to teach or suggest either step (i) or step (ii).

Speakman discloses colloids, inter alia, in paragraphs [0103], [0110], [0151], [0464] and [0479], including Au, Pt, Ni, Cu, In and Sn as specific examples of metallic colloids in paragraph [0480]. However, this is not a disclosure of a colloidal particle of a metal core and a covering shell of an organic substance. Therefore, such does not teach or suggest a colloidal solution of a liquid medium and a colloid of a metal core and organic substance shell.

In paragraphs [0226] and [0233] Speakman discloses a printing material which includes particles including nickel-coated polystyrene. However, in this embodiment styrene is the core and nickel is the shell. This is directly opposite to the instant claimed colloid of a metal

core and an organic substance shell. In paragraph [0236] Speakman discloses organically modified silicates ("ormosils"). In this ormosil structure the core is a ceramic, not a metal. In addition, "cermets" disclosed in [0238] do not exhibit a core-shell structure. Cermets are a mixture of ceramic and metallic components, such as a metal carbide, boride, oxide or silicide, as well as (polyimide - Cu) as in [0481].

The disclosure in [0243] of Speakman of a circuit element formed of a chemically-modified polymeric-based or inorganic-based fluid teaches nothing of a colloid with a metallic core and an organic shell. Therefore Speakman fails to teach instant step (i).

Speakman fails to teach the instant step (ii) of drying the colloid layer with IR or hot air to remove the organic shell and liquid medium in order to anchor the metal colloid particles. Firstly, since Speakman fails to teach a layer of a colloid particle of a metallic core and an organic shell, it must fail to teach removal of the organic shell and a liquid medium in order to anchor the metallic core. Second, the disclosure of IR in [0204], [0251], [0252], [0266] and [0479] of Speakman merely mentions infrared radiation especially used to modify the reaction of a droplet to promote material reflow, recrystallization, mixture blending or bulk/profile smoothing, conducted before, during or after deposition. [0257]. Conducting IR exposure on droplets before or during deposition teaches nothing of drying a layer on substrate containing a metallic colloid. Further, the droplet is not disclosed to have a core-shell structure with a metallic core and an organic shell.

In [0472] Speakman discloses droplets impinging on a semiconductor region to cause localized doping. By illuminating the doping region with infrared radiation on the like,

improved control of doping is said to be obtained to change the local material property, including diffusion through an entire layer.

The Speakman doping control step is distinguished from the instant step of removing an organic substance shell from the metallic core and removing a liquid medium via IR to anchor the metal colloid particles without adversely effecting the substrate.

In paragraphs Speakman [0252] and [0266] it is disclosed that liquid droplets are pre-treated in flight by, inter alia, IR radiation to conduct evaporation/volatilization/energy transfer/in-flight solidification either at the nozzle of an ink-jet head or in the flight path of the droplet. This in-flight feature has nothing to do with removing an organic shell and liquid medium from a deposited layer on a substrate to anchor the metallic core on the substrate. The APA fails to remedy the defects of Speakman.

With regard to the rejection of claim 8 the Examiner's allegation that "it would have been obvious to one with ordinary skill in the art at the time of the invention that the relation $\theta 1$ ave >= $\theta 2$ ave will hold true since otherwise the ink will not be absorbed in the porous layer and the quality of an electrically conductive film will not be so great" is incorrect because no ground for such allegation is indicated and such condition is not considered to be well known or subject to empirical rules.

The claims should be allowed and the case passed to issue.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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